

The Claims

What is claimed is:

1. A method of treating or preventing dental caries, dental plaque, and periodontal infection in a humans or animals comprising administering to the oral cavity of a human or animal one or more lactic bacteria that are not part of the resident microflora of the mouth, that are low acidifying, and that are capable of adhering directly to the pellicle of the teeth to displace from the teeth or prevent attachment to the teeth of cariogenic strains of bacteria that are resident microflora of the mouth.

2. The method of claim 1, wherein the lactic bacteria to be administered provides a pH in the oral cavity of about 5.5 to 5.7.

3. The method of claim 1, wherein the lactic bacteria are of dairy origin.

4. The method of claim 1, wherein the lactic bacteria comprise one or more of *Streptococcus thermophilus*, *Lactococcus lactis subsp. lactis*, or *Lactococcus lactis subsp. lactis biovar diacetylactis*.

5. The method of claim 1, wherein the lactic bacteria are one or more of the strains CNCM I-1984, CNCM I-1985, CNCM I-1986, CNCM I-1987, or LMG P-18997.

6. The method of claim 1, wherein the lactic bacteria have optimal growth at a temperature of about 37°C.

7. The method of claim 1, wherein the lactic bacteria have been genetically modified to have improved adherence to the pellicle of the teeth or to be less acidifying than the resident microflora in the mouth.

8. The method of claim 7, wherein the lactic bacteria have been genetically modified to have improved adherence to the pellicle of the teeth by insertion of the X17390 gene, the X14490 gene, or the X53657 gene.

9. The method of claim 1, further comprising administering the lactic bacteria in combination with one or more of milk, fermented milk, milk derivatives, or bacteriocin.

10. The method of claim 9, wherein the milk derivative comprises one or more of a caseino-glycomacropeptide, micellar casein, fluorinated micellar caesin, or renneted milk.

11. A composition for preventing dental caries, dental plaque, and periodontal infection comprising one or more lactic bacteria that are not part of the resident microflora of the mouth selected from the group consisting essentially of acidifying lactic bacteria that adhere to the pellicle of the teeth that have been genetically modified to be low acidifying compared to resident microflora, low acidifying lactic bacteria that does not adhere to the pellicle of the teeth that has been genetically modified to adhere to the pellicle of the teeth, acidifying lactic bacteria that does not adhere to the pellicle of the teeth that has been genetically modified to be low acidifying compared to resident microflora and to adhere to the pellicle of the teeth, and mixtures thereof.

12. The composition of claim 11, wherein the lactic bacteria is present in an amount of 10^4 to 10^9 cfu/g in order to provide a pH of at least 5.5 when the composition is administered to the mouth of a human or animal..

13. The composition of claim 11, wherein the lactic bacteria one or more of *Streptococcus thermophilus*, *Lactococcus lactis subsp. lactis*, or *Lactococcus lactis subsp. lactis biovar diacetylactis*.

14. The composition of claim 11, wherein the lactic bacteria are selected from the strains CNCM I-1984, CNCM I-1985, CNCM I-1986, CNCM I-1987, and LMG P-18997.

15. The composition of claim 11, wherein the lactic bacteria have optimal growth at a temperature of about 37°C.

16. The composition of claim 11, wherein the lactic bacteria have been genetically modified to have improved adherence to the pellicle of the teeth by insertion of the X17390 gene, the X14490 gene, or the X53657 gene.

17. The composition of claim 11, further comprising one or more of milk, fermented milk, milk derivatives, or bacteriocin.

18. The composition of claim 17, wherein the bacteriocin is present in an amount of 0.00001 to 50 percent by weight of the composition.

19. The composition of claim 17, wherein the milk derivative comprises one or more of a caseino-glycomacropeptide, micellar casein, fluorinated micellar casein, or renneted milk in an amount of at least about 0.1 percent by weight of the composition.

20. The composition of claim 11, further comprising one or more of an oil soluble antioxidant in an amount of about 0.005 to 0.5 percent by weight of the composition and an abrasive.

21. The composition of claim 11, in the form of a toothpaste, mouth rinse, gum, spray, beverage, candy, infant formula, ice cream, frozen dessert, sweet salad dressing, milk preparation, cheese, quark, yogurt, acidified milk, coffee cream, or whipped cream.

22. A method for screening lactic bacteria capable of adhering to teeth comprising:

preparing monoclonal antibodies that recognize specific surface proteins of lactic bacteria strains that are capable of adhering to the teeth; and

screening lactic bacteria strains with the monoclonal antibody to identify the strains of lactic bacteria that adhere to teeth.